

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of

Establishment of Rules and Policies for
the Digital Audio Radio Satellite Service
in the 2310-2360 MHz Frequency Band

IB Docket No. 95-91
RM No. 8610
DA No. 01-2570

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SUMMARY

In a fitting culmination to their efforts in this proceeding, the SDARS licensees have submitted comments that ably encapsulate their strategy throughout: recrimination, obfuscation, misdirection, and overreaching. They purport to offer solutions and compromise, but in actuality have merely disguised existing proposals or even reached for more favorable treatment. By this point in the proceeding, it should surprise no one that the SDARS licensees fully expect the Commission to allow them to legitimize and optimize their “experimental” nationwide terrestrial high power repeater networks by imposing debilitating interference upon WCS licensees – and to do so without absorbing any of the cost. As former Governor Ann Richards famously said, “You can put lipstick on a sow, give her a purse and call her Monique, but she’s still a pig.” The Commission should recognize the SDARS proposals for what that they are.

For example, the SDARS licensees propose to redefine the standard concept of EIRP to account for their use of directional antennas. What they fail to mention is that (1) the redefinition does nothing to alleviate interference suffered by WCS equipment in the directional beam, (2) they have deployed multiple directional antennas at a single location to achieve omni-directional coverage at a uniform EIRP level far greater than 2 kW, and (3) the Commission has already rejected this approach in adopting the existing rules on blanketing interference for broadcasters. The attempt to define away the problem is analogous to a financial accounting gimmick that places inconvenient transactions and investments “off book” – it masks the issue and presents a more attractive picture, but does not change the underlying facts or resolve the serious issues.

The SDARS licensees also claim to support the Commission's efforts to compensate WCS licensees for interference imposed by high power SDARS repeaters. A closer inspection reveals that (1) they would exclude CPE, although they recognize it as potentially the most significant interference issue, (2) even with respect to base stations, they would exclude compensation for anything other than a filter, such as the cost of redesigning equipment or actually installing the filter, and (3) they would impose a timetable under which the period for most reimbursement would likely end even before rules have been adopted. Moreover, they would cap total compensation for all WCS licensees – no matter how much interference SDARS may actually cause – at \$1,000,000, and even then WCS licensees would bear the burden of production and persuasion to demonstrate to the SDARS licensees' satisfaction that there is a problem. Such a severely cramped concept of compensation is flatly inconsistent with the Commission's approach in similar interference situations.

Instead of proposing solutions that would allow all licensees in the 2.3 GHz band to coexist and offer commercially viable services, the SDARS licensees have put forward a regime that benefits only their own narrow interests. At every turn, they insist that they be given unfettered rights – for example, to deploy unlimited high power repeaters without compensation and without coordination – while WCS operators absorb the burden of those rights – repointing receivers, relocating base stations, and redesigning equipment at great expense. Even more than the proposal in the PN, the proposals made by the SDARS licensees would render WCS secondary in its own band.

Rather than resort to such regulatory legerdemain, the WCS Coalition has proposed a sensible, substantive, and straightforward approach to resolving the

blanketing interference and intermodulation distortion created by high power repeaters. This Sunset Proposal would give SDARS licensees five years to transition from their current experimental high power repeater networks to standard 2 kW networks, and leave open the option to negotiate for higher power levels with affected WCS licensees. The proposal will ultimately restore parity to the band while allowing the SDARS licensees to make productive use of their investment in experimental networks and maintain them where market conditions allow. At the end of the day, the Sunset Proposal is the best option for resolving these interference issues consistent with the Commission's statutory mandate, its spectrum management policies, and its understandable desire not to cast a pall over flexible spectrum allocations in the future.

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INTRODUCTION

XM and Sirius attempt to pull off a grand illusion in this proceeding by equating their own narrow self-interest with the larger public interest, regardless of what costs they

⁴ Public Notice, Rep. No. SPB-176, 66 Fed. Reg. 58697 (Nov. 23, 2001) (“PN”).

impose on other spectrum licensees and consumers. The WCS Coalition, by contrast, has consistently sought a solution that will allow all licensees in the band to coexist and offer commercially viable services. Its Sunset Proposal would achieve just that by establishing an equitable and gradual transition back to the standard 2 kW EIRP power level in the band – an approach consistent with the requirements of Section 324 of the Communications Act, which mandates that “all radio stations . . . shall use the minimum amount of power necessary to carry out the communication desired.”⁵ The Commission should look through the SDARS licensees’ efforts at misdirection and adopt the WCS Coalition’s rational, reasonable, and straightforward Sunset Proposal.

DISCUSSION

I. The SDARS Licensees Have Been Anything But Consistent, Except in Their Attempts to Authorize Ever-Greater Numbers of High Power Repeaters.

The SDARS licensees begin their comments with an *ad hominem* attack on the WCS community for its alleged failure to raise interference issues earlier, and contrast their own purportedly consistent position.⁶ They repeatedly refer to an application filed by Sirius in 1990 that disclosed its desire to use terrestrial repeaters. They then catalogue the Commission proceedings in 1995 and 1997 in which objections could have been raised and ask why no one came forward. Accordingly, before addressing the merits of the SDARS proposals, the WCS Coalition is compelled once again to briefly rebut this attack. As discussed below, the WCS service was not even created until 1997, and as documented in previous WCS Coalition submissions, even the Commission had to ask

⁵ 47 U.S.C. § 324.

⁶ See, e.g., XM Comments at pp. 1-5; Sirius Comments at pp. 1-3.

the SDARS licensees repeatedly for information on their terrestrial deployment plans – which have changed dramatically over time.⁷

When the concept of terrestrial repeaters was first introduced, it was fairly amorphous except in one particular – such transmitters were to be gap-fillers only, to be used in urban canyons, under bridges, in high mountain passes, in tunnels, and in other areas where it may be difficult to receive SDARS signals transmitted by the satellite. The number of such repeaters was a matter for conjecture, although Sirius did confirm that it had “always planned a limited number of terrestrial stations” and criticized another potential SDARS applicant for proposing to implement “scores” of such repeaters.⁸ In 1995, the Commission explicitly found that it did not have enough information from the SDARS community to determine whether authorizing terrestrial repeaters would be in the public interest, much less formulate proposed rules for their operation.⁹ Again in 1997, the Commission did not propose its own rule, but rather requested comment on a rule submitted by Sirius.¹⁰ At the time Sirius made its proposal, there were no WCS

⁷ Moreover, their assertion that anyone who bought WCS spectrum had to have been aware of the SDARS proposal to use high power terrestrial repeaters and so should have planned accordingly fatally fails to distinguish between the significance of a private party’s *proposal* as opposed to a government agency’s *final rule*. See, e.g., *Amendment of Part 90 of the Commission’s Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, 12 FCC Rcd. 13942, 13964-65 (1997)(private party proposed 300 W EIRP limit but Commission adopted 30 W).

⁸ See Letter from Richard E. Wiley to Donald H. Gips, Richard Smith, and William Kennard, *CD Radio Request for Pioneer’s Preference (PP-24)*, at p. 5 (dated Oct. 2, 1996). One score equals 20 repeaters.

⁹ See *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, 11 FCC Rcd. 1, 18 (1995)(“Until such information is available and applicants demonstrate how these complementary terrestrial networks would be implemented in the overall satellite system design, we cannot determine if terrestrial gap-fillers should be permitted and what rules should govern their use”).

¹⁰ See *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, 12 FCC Rcd. 5754, 5812 (1997).

licensees. In fact WCS licenses were not issued until July 21, 1997 – two months *after* the period for comment on the repeater proposal had passed.

Still attempting to fill an information void, the Commission staff requested additional information from the SDARS licensees on their terrestrial repeater deployment plans. In their November 1997 responses, XM stated that the EIRP of its repeaters “will not exceed 10 kW”¹¹ while Sirius stated that it would deploy 600 to 800 passive repeaters and 100-150 active repeaters with useful output power of “under one kilowatt” and antenna gains that “would generally be between 15-28 dBi.”¹² Two years later, in late 1999, the SDARS licensees submitted another thumbnail sketch of their planned repeater deployments. In its filing, XM represented that it would deploy approximately 150 high power repeaters, most of which would operate at EIRP ranging between 6 kW and 20 kW with approximately 25 having an EIRP of 20 kW to 40 kW.¹³ Sirius stated that it would need repeaters operating at up to 40 kW EIRP at approximately 105 sites in the urban cores of 46 cities.¹⁴ On January 11, 2001, XM presented a summary hand-out at a meeting of Commission staff with WCS and SDARS licensees in which it again confirmed that it would only deploy 150 repeaters with EIRP over 2 kW.¹⁵

At this point, the number of proposed repeaters began to jump dramatically. In January 2001, Sirius filed proposed rules under which each SDARS licensee would be

¹¹ Letter from William Garner to Rosalee Chiara (dated Nov. 14, 1997).

¹² Letter from Robert D. Briskman to Rosalee Chiara at p. 5 (dated Nov. 14, 1997).

¹³ Supplemental Comments of XM Radio Inc., App. A at pp. 4-5 (dated Dec. 17, 1999).

¹⁴ Supplemental Comments of Sirius Satellite Radio at p.3 (dated Jan. 18, 2000).

¹⁵ See Attachment to letter from William M. Wiltshire to Thomas Sugrue (dated Aug. 8, 2001).

entitled to deploy approximately 577 repeaters nationwide with EIRP over 2 kW.¹⁶ In April, XM proposed a rule that would allow 250 repeaters operating between 10 kW and 40 kW EIRP as of right with the option for additional transmitters conditioned only upon provision of appropriate filters for WCS base stations.¹⁷

Beginning in September 2001, the SDARS licensees seized upon a new, much more aggressive strategy under which they would (1) define much of the problem away, and (2) agree to limited deployment only for a very short period of time. Thus, for the first time the SDARS licensees introduced into this proceeding the concept of a new method for calculating the EIRP of their terrestrial repeaters – a method that even they had not previously thought of in the decade since repeaters were first proposed in 1990 – under which EIRP for directional antennas is averaged over the full 360° that would be covered by an omni-directional antenna (the “360 A-EIRP” methodology).¹⁸ As discussed further below, such an “averaging” approach not surprisingly has the effect of greatly reducing the power levels at which the repeaters appear to be operating. Also for the first time, they proposed to limit high power deployment (as defined under the new 360 A-EIRP methodology) to no more than 150 each through January 2003, with ***unlimited*** deployment thereafter.¹⁹

In their comments on the PN, both Sirius and XM have continued with this latest “voodoo engineering” ploy of using 360 A-EIRP. Moreover, they now object to ***any*** cap

¹⁶ See Letter from Carl R. Frank to Magalie Roman Salas (dated Jan. 25, 2001).

¹⁷ See Letter from Bruce D. Jacobs to Magalie Roman Salas (dated April 25, 2001).

¹⁸ See Letter from Bruce D. Jacobs to Magalie Roman Salas (dated Sept. 7, 2001); Letter from Carl R. Frank and Bruce D. Jacobs to Magalie Roman Salas (dated Sept. 26, 2001).

¹⁹ *Id.*

on deployment of high power repeaters, even a short-term freeze at the levels authorized under their STAs. Clearly, the SDARS licensees have come quite a long way from the original proposal for a limited number of “gap-fillers” and scorn for those who would deploy “scores” of terrestrial transmitters.

As the SDARS licensees admit, the issue of blanketing interference to WCS operations has been part of this proceeding for almost two years²⁰ – ever since there was enough information in the record from the SDARS licensees to allow a meaningful analysis of the potential impact. As the WCS licensees have been able to prise more information out of the SDARS licensees, the true scope and nature of the terrestrial repeater deployment has become clearer – and more threatening. In these circumstances, it is all the more imperative that the Commission halt further deployment of high power repeaters and establish a glidepath back to the recognized 2 kW EIRP standard in the 2.3 GHz band.

II. Redefining the Long-Standing Concept of EIRP Will Mask, But Not Address, the Impact of Terrestrial Repeaters Interference.

The SDARS licensees propose that the Commission redefine the well-established concept of EIRP for purposes of their repeater deployment so that power is averaged over 360° rather than determined at its true level in the direction of radiation. Using this artifice, they then present a “compromise” under which high power repeaters could be deployed in unlimited numbers subject only to a 18 kW 360 A-EIRP rather than a 40 kW EIRP cap, and all 2 kW 360 A-EIRP repeaters would be covered by a blanket license.

²⁰ See, e.g., Sirius Comments at pp. 19-20 (noting that WCS licensees objected in January/February 2000).

This 360 A-EIRP approach is like the accounting gimmick of placing inconvenient facts “off book”: it makes the picture look better on the outside but upon closer inspection reveals a host of shortcomings and intentional misdirection. The fact is that for a piece of WCS equipment that receives interference from an SDARS repeater, it does not matter whether that interference is only in a 90° or 180° sector -- it only matters that it is in *its* sector. And if a directional antenna is pointed at a group of potential WCS subscribers, it does not matter that it is not also causing interference to other areas of the city.

XM characterizes an 18 kW 360 A-EIRP as a power limit “far below the 40 kW limit DARS licensees have proposed in the past,”²¹ while Sirius asserts that its proposal “would reduce power by 70 percent.”²² The truth, however, is easy to discern. Using the proposed 360 A-EIRP methodology, the 45° and 90° directional antennas used by XM and Sirius that operate at up to 8 kW EIRP would instead be deemed to be low power repeaters operating at 2 kW 360 A-EIRP, and a 36 kW EIRP high power repeater with a 45°, 90°, or 180° beamwidth would be deemed to be operating at only 18 kW 360 A-EIRP. The illusion of compromise is belied by the reality that changing the definition does not change the interference environment, which will only grow worse if additional high power repeaters are deployed without limit.

The 2 kW EIRP limitation applicable to WCS is not averaged over 360°, nor is the EIRP limitation for PCS, paging, cellular, or virtually any other service. The SDARS licensees have attempted to latch on to the one service – MDS – in which the

²¹ XM Comments at p. 25.

²² Sirius Comments at p. 12.

Commission has adopted an averaging approach²³ and to justify the use of that approach in this case on the premise that directional antennas create less of an exclusion zone around a repeater.²⁴ However, the MDS rule is inapposite to the interference issues presented here. In adopting that rule, the Commission was attempting to create “an accurate measure of the ability of a particular station to serve points within the service area” – in other words, a gauge of coverage – as it transitioned from technical limits based on one measure of power (Watts) to another (EIRP).²⁵ There was no discussion of the impact on other services.

By contrast, when the Commission has actually considered cases of blanketing interference, it has reached a far different conclusion. Section 73.318 of the Commission’s rules, which addresses blanketing interference from FM stations, provides that “[f]or directional antennas, the effective radiated power in the pertinent bearing shall be used” in determining the area assumed to be subject to blanketing.²⁶ The Commission found that this approach “is a more realistic depiction of a directional antenna’s contour” and it has proposed to conform the blanketing interference rule for TV stations.²⁷ It was

²³ See 47 C.F.R. §§ 21.904(b).

²⁴ XM Comments at pp. 10-11; Sirius Comments at pp. 6-8.

²⁵ See *Amendment of Parts 21, 74, and 94 of the Commission Rules and Regulations with regard to technical requirements applicable to the Multipoint Distribution Service*, 98 F.C.C.2d 7, 10 (1984) (noting that former rule “is not an accurate measure of the ability of a particular station to serve points within the service area”). In order to avoid regulatory gamesmanship through the use of multiple directional antennas at a single site, the Commission stressed in adopting the rule “that stations using more than one antenna in their non-omnidirectional antenna system must use the total beamwidth of all antennas in calculating the allowed EIRP.” *Id.* at pp. 11-12.

²⁶ 47 C.F.R. § 73.318.

²⁷ See *FM Broadcast Station Blanketing Interference*, 57 R.R.2d (P&F) 126 at ¶13 (1984); *Amendment of Part 73 of the commission’s Rules to More Effectively Resolve Broadcast Blanketing Interference*, 11 FCC Rcd. 4750, 4757 (1996).

this rule related to interference, and not the MDS rule related to coverage, that was a model for the PN.²⁸

Neither Sirius nor XM used the 360 A-EIRP methodology in its request for special temporary authorization in July 2001. Therefore, it is instructive to see what impact the revised methodology would have on those requests. XM requested temporary authority to operate 778 repeaters with EIRP between 2 kW and 40 kW.²⁹ Using the 360 A-EIRP methodology would, by the operation of a mathematical convention, transmute 496 of those high power repeaters -- 64% of the total -- to low power repeaters apparently operating at 2 kW EIRP or less. Sirius requested temporary authorization for 151 high power repeaters, 25 of which -- 16.6% of the total -- would be converted into low power repeaters using the 360 A-EIRP methodology.³⁰ Under this approach, these 521 repeaters would simply vanish under the cover of a blanket license.

But of even more concern should be the fact that *many of these directional antennas are placed back-to-back so that they cover all 360° that an omni-directional antenna would serve*. In such a case, the purported reason for changing the EIRP calculation is clearly inapposite. XM's deployment in Boston is a useful illustration. In that city, 18 of the 29 repeater locations are comprised of three 120° antennas placed back-to-back-to-back in order to achieve omni-directional, 360° coverage, and another

²⁸ See 66 Fed. Reg. at 58700.

²⁹ See Letter from Lon C. Levin to Magalie Roman Salas, File No. SAT-STA-20010712-00063, at Exhibit A (dated July 12, 2001)("XM STA Request").

³⁰ See Letter from Robert D. Briskman to Magalie Roman Salas, File No. SAT-STA-20010724-00064, at Exhibit A (dated July 24, 2001)("Sirius STA Request").

site combines two 120° antennas to achieve 240° coverage.³¹ In Providence, every single one of the six repeater sites used by XM combines three 120° antennas to achieve omnidirectional coverage.³² Sirius also has repeater installations that combine two 180° antennas at a single site to achieve omnidirectional coverage – in Atlanta (2), Cincinnati, Denver, Las Vegas, Los Angeles (4), New York (4), Orlando, and Phoenix -- as well as two installations that combine three 120° antennas – in Los Angeles and Washington.³³ The SDARS licensees conveniently neglect to mention these facts because doing so would spoil the illusion they seek to create.

Clearly, placing multiple directional antennas at a single site does not even arguably ameliorate the interference environment for WCS licensees. Yet an SDARS licensee could effectively mask the true level of interference created by such a site by using the 360 A-EIRP methodology. For example, an installation with four 90° antennas each operating at 8 kW EIRP would create the same level of interference as a single omnidirectional antenna of 8 kW EIRP – but would be deemed to be operating at less than 2 kW 360 A-EIRP and thus the entire installation would be covered by the proposed blanket license for low power repeaters. Similarly, an installation with two 180° antennas each operating at 36 kW would create the same level of interference as a single omnidirectional antenna of 36 kW – but would be deemed to be operating at less than 18 kW 360 A-EIRP, and so would be allowable in unlimited numbers under the rules proposed by the SDARS licensees. There simply is no conceivable justification for a 360

³¹ See XM STA Request, Exhibit A at p. 7.

³² *Id.* at p. 45.

³³ See Sirius STA Request, Exhibit A at pp. 1-2.

A-EIRP approach in this proceeding other than to paper over the impact that SDARS' constantly expanding demands will have on other licensees.

III. Proposed Limitations on “Compensation” for SDARS Interference Would Effectively Render the Obligation a Nullity.

A. *Excluding CPE Unjustifiably Ignores the Largest Potential Interference Concern.*

Both XM and Sirius propose that any interference compensation obligation exclude CPE. However, in their cursory discussions of the issue neither of them provides a reasonable basis for doing so. XM baldly asserts that “[i]t would be unfair to expose DARS licensees to the open-ended potential liability of resolving interference to CPE.”³⁴ But if compensation is the goal, why would it be unfair to require the source of an interference problem to compensate the victim for all interference actually suffered – especially if it is an “open-ended” liability that could impose significant hardship on WCS licensees? Such an approach would be flatly inconsistent with the compensation obligations imposed in other blanket licensing cases – including on WCS – where the Commission required the interferor to “bear the full financial obligation” for remediation.³⁵ Moreover, it ignores the fact that remediating interference into base stations will solve nothing if interference to CPE continues. If either side of the link is overwhelmed by brute force overload, the service will fail.

Sirius asserts that CPE should not be covered “because such receivers can be pointed in a non-interfering direction.”³⁶ This argument fails for at least three reasons.

³⁴ XM Comments at p. 21.

³⁵ See, e.g., 47 C.F.R. §§ 27.58(a) (“full financial obligation”), 73.318(b) (“no cost to complainant”).

³⁶ Sirius Comments at p. 21.

First, Sirius' answer would place the significant economic and technical burden on WCS licensees to deploy extra base stations in order to achieve sufficient pointing options that they can work around SDARS repeaters. This would unfairly transfer these costs to the victimized service, and assumes, without justification, that sufficient sites can be found in appropriate locations to achieve the necessary diversity. Second, the SDARS licensees have proposed rules under which they would be entitled to deploy an unlimited number of high power repeaters at any time without any prior coordination and with only 30 days' notice. Thus, even if WCS licensees pointed their CPE away from current SDARS repeaters, there is no guarantee that they will not be required to reorient large numbers of receivers on very short notice, with all of the attendant expense and customer inconvenience and confusion that goes along with such a process. Third, given that both XM and Sirius would be able to deploy unlimited numbers of both high power and low power repeaters, there is no guarantee that a WCS operator would be able to find *any* direction to repoint CPE that would not also be subject to SDARS interference.

WCS licensees have amply documented the deleterious effect of high power SDARS repeaters upon WCS CPE, as well as the fact that there is no simple remediation strategy – including those strategies suggested by XM and Sirius.³⁷ For example, unlike SDARS licensees, WCS licensees are not free to simply ramp up their power to overcome potential interference because their CPE is constrained by RF emissions in proximity to human users. WCS equipment already employs automatic gain control (“AGC”), but as WCS licensees have explained at length in this proceeding even this is

³⁷ See, e.g., footnote 23 of WCS Coalition's Comments (filed Dec. 14, 2001).

no magic elixir capable of solving all interference problems.³⁸ The SDARS licensees also use AGC in their receivers, and the technology allows them to coexist in close proximity *precisely because they operate at relatively comparable power levels*. The wide disparity between the power levels of WCS transmitters and high power SDARS repeaters creates a situation that AGC cannot rectify.³⁹ The SDARS licensees themselves demonstrate the fact that AGC is no panacea for all interference issues, since they claim to suffer intolerable interference from RF lights and other unlicensed devices operating hundreds of MHz away at power levels of 1 Watt or less.⁴⁰ It should therefore come as no surprise that transmitters operating at 40,000 times that power level and less than 4 MHz away would present even the most modern technology available with nearly insurmountable technical and economic challenges in mitigating interference to a service operating at far lower power levels.

The SDARS licensees continue to assert that WCS equipment is poorly engineered and that simple, low-cost filtering is available to solve the interference problem created by high power repeaters. The record contains numerous technical showings that expose the fallacy of this claim, including technical analyses submitted for the record by both BeamReach and Navini Networks, developers of second generation,

³⁸ See *id.*

³⁹ See Letter from BeamReach Networks *et al.*, Attachment at pp. 3, 17.

⁴⁰ See, e.g., Comments of Sirius Satellite Radio, ET Docket No. 99-231, at pp. 3-4 (filed Aug. 27, 2001); Reply Comments of XM Radio, Inc., ET Docket No. 99-231, at p. 4 (filed Sept. 25, 2001); Attachment to letter from Carl R. Frank to Magalie Roman Salas, ET Docket No. 98-42 (dated May 25, 2000); Reply Comments of AMRC, ET Docket No. 98-42 (filed Aug. 7, 1998). Many of the rules authorizing these unlicensed operations were already adopted (not just proposed) at the time SDARS licenses were auctioned, so XM and Sirius were clearly on notice that such interference should be taken into account in the design of their receiving equipment.

state-of-the-art fixed wireless systems.⁴¹ Rather than revisit all of those showings here, the WCS Coalition simply urges the Commission to bear in mind that record evidence, and not mere repeated assertion, should be the basis for its decision.

If there is to be a compensation approach taken in this proceeding, the obligation must cover *all* equipment affected by brute force overload and intermodulation distortion from high power repeaters. The SDARS licensees are not free to ignore a demonstrable problem of their own creation just because ameliorating it may be expensive.

B. Short Duration, Limited Coverage, and a Cap on the Monetary Obligation Further Ensure Against Payment.

Sirius and XM also propose other restrictions on their compensation obligation that would reduce it to a virtual nullity. First, in addition to limiting coverage to base stations only, the SDARS licensees propose to further limit their liability to providing filters only. They would have no responsibility whatsoever for expenses incurred by WCS licensees to redesign equipment, install the filters,⁴² or repoint or relocate receivers. In effect, their responsibility would be over once they handed a filter to the victimized WCS operator.

Second, they propose a very short period during which *any* compensation would be due and a rapid decrease in the percentage of such compensation that they would have to bear. Specifically, the SDARS licensees would start the compensation clock running on the date they were granted STAs – *i.e.*, September 17, 2001. Under the SDARS plan:

⁴¹ See, e.g., Letter from Randall Schwartz to Magalie Roman Salas (dated Aug. 21, 2001); Comments of Navini Networks Inc. (dated Aug. 23, 2001).

⁴² At least in its proposal earlier this year, XM would have covered expenses for the filters through installation. See Letter from Bruce D. Jacobs to Magalie Roman Salas (dated April 25, 2001).

- Prior to January 1, 2002, SDARS licensees would be liable for 100% of the cost of filters to remedy interference at an operating WCS base station site caused by high power repeaters;
- From January 1, 2002 until March 17, 2002, SDARS licensees would be liable for 50% of the cost of such filters; and
- From March 17, 2002 until September 17, 2002, SDARS licensees would not be responsible for remedying any interference to an operating base station site caused by high power repeaters identified in the July 2001 STA requests; SDARS licensees would, however, be liable for 100% (under XM's proposal) or 50% (under Sirius' proposal) of the cost of filters to remedy interference caused by a new high power repeater.⁴³

The SDARS licensees apparently make this proposal without noting the irony of setting up a program for prospective compensation that depends largely upon claims that would have to have been raised before the rule even went into effect.⁴⁴ To the contrary, XM boldly claims that its proposed twelve-month compensation schedule represents a "significant concession on its part" while at the same time asserting that "there is little reason to believe that WCS licensees will deploy facilities in the next 18 months."⁴⁵ XM's disingenuous offer of "compromise" is even more transparent in its proposal to prevent WCS licensees from seeking compensation for facilities "that were not disclosed to SDARS licensees before the deployment of a given repeater"⁴⁶ – an exclusion that would essentially preclude compensation for any interference caused by a repeater subject to the current STAs and render the entire compensation schedule moot.

This severely truncated compensation period is particularly inappropriate in the WCS context. The WCS service was mandated by Congress in September 1996, created

⁴³ See XM Comments at p. 22; Sirius Comments at p. 19.

⁴⁴ As Sirius admits, no final rule is likely to become effective prior to February 20, 2002. See Sirius Comments at p. 24.

⁴⁵ See XM Comments at pp. 18-19.

⁴⁶ *Id.* at p. 22.

by the Commission in February 1997, reconsidered and subjected to a 2 kW EIRP limit less than two months later, and auctioned that same month. WCS was the first truly flexible spectrum allocation, but was also subject to rigorous technical limitations designed to protect other spectrum users (including SDARS). Licensees had to fight to preserve the spectrum from use by Mexican SDARS systems, only to find that domestic SDARS systems could pose an even greater threat. Given all this, it should come as no surprise that there was no ready supply of equipment and business plans for WCS licensees to use, a situation made all the worse by the severe downturn in the telecommunications sector beginning in early 2000 which persists today. By contrast, as Sirius and XM so frequently remind us, SDARS had seven years from the first proposal to the time spectrum was licensed, and over four years since – yet repeater deployment plans have changed over time and is still in the “preliminary” stage of planning. The Commission gave WCS licensees ten years to achieve substantial service. It should not now penalize them for not having achieved full-scale deployment in only four years from the hasty creation of the service.

Third, without any regard to or discussion of the extent of actual expense they might impose upon WCS operators, the SDARS licensees propose a hard cap of \$10,000 per WCS base station and \$1,000,000 total on all compensation claims. Thus, they could exhaust their obligation by remediating interference to as few as 100 base stations nationwide for all WCS licensees combined. Moreover, they would place the burden on WCS licensees to demonstrate to the SDARS licensees that interference is sufficient to “prevent[] the provision of commercial service” on a widespread basis.⁴⁷ Needless to

⁴⁷ See Sirius Comments at pp. 18-19.

say, these proposals are not consistent with any notion of compensation for debilitating interference imposed upon another licensed service that the Commission has ever adopted in prior cases.

IV. RF Safety Considerations Cannot Be Obscured With the Wave of a Hand.

As the WCS Coalition argued in its initial comments in response to the PN, there is no technical or rational basis for the Commission to raise the threshold for routine environmental evaluation of terrestrial repeaters to 2000 W EIRP when WCS, MDS, GWCS, paging, and cellular are all subject to a 1640 W threshold. As noted by the National Association of Broadcasters, the 1640 W EIRP threshold is a calculated value based upon the Maximum Permissible Exposure limits established in the Commission's RF safety guidelines.⁴⁸ In fact, the 1640 W EIRP threshold was established as part of the comprehensive proceedings that updated the Commission's RF safety regulations,⁴⁹ and therefore should not be lightly and without thorough analysis departed from in this proceeding. Sirius argues that this departure is justified because it will align the RF evaluation threshold and the blanket licensing limit at 2 kW.⁵⁰ However, many other services (including WCS, MDS, paging, and cellular) have blanket licenses for their transmitters with 2 kW EIRP operating limits but a 1640 W EIRP threshold for RF evaluation. This purported rationale is therefore unpersuasive, in addition to being unsupported by any technical analysis.

⁴⁸ See OET Bulletin 65, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, Edition 97-01, Federal Communications Commission, Aug. 1997, at Appendix A.

⁴⁹ See Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, 11 FCC Rcd. 15123, 15157-59 (1996).

⁵⁰ See Sirius Comments at p. 25. Sirius does not explain how this alignment is possible if blanket licensing is based on 360 A-EIRP rather than EIRP.

V. The WCS Coalition's Sunset Proposal Eschews Regulatory Legerdemain and Instead Offers a Reasonable and Workable Solution to the Interference Issues Consistent With the Mandates of the Communications Act.

The WCS Coalition has proposed a very straightforward Sunset Proposal that would avoid compensation issues entirely and, ultimately, would harmonize the power levels used in this band at the recognized standard – 2 kW EIRP. It does not involve the use of redefined technical terms or complex but ultimately meaningless timetables and gain contours. Rather, it establishes a timeframe for the orderly migration of the 2.3 GHz band back to a 2 kW environment in which all licensees will be able to provide the services for which they were licensed.

The root of the problem in this proceeding is the disparity between SDARS repeaters operating at 40 kW and WCS transmitters operating at no more than 1/20 that level – and usually far less. This problem is exacerbated by the SDARS licensees' attempt to devise a solution at the WCS licensees' expense while at the same time making the problem worse. They propose to continue deploying an unlimited number of high power repeaters without any prior coordination. The issue is not what procedures could be put in place to govern such deployments, but rather the more central question of whether it is economically practicable for WCS licensees to operate in a regulatory regime that blatantly favors one set of licensees over another. As Sirius itself has observed in a less guarded moment, “[r]ules limiting transmitter power have historically been necessary in situations where there are widespread dangers of frequency interference and coordination would be impractical.”⁵¹ That is certainly the case here.

⁵¹ See Reply Comments of CD Radio at p. 2 (filed Jan. 21, 1998).

Both XM and Sirius have argued that their proposed 40 kW power levels are not inordinate when compared to the power levels allowed for terrestrial broadcast services.⁵² This comparison reveals a telling flaw in their worldview. Terrestrial repeaters are supposed to be ancillary to a satellite system, filling in gaps in satellite signal coverage. Instead, XM and Sirius have designed and deployed terrestrial broadcast networks that override the satellite signal throughout major metropolitan areas in the United States.⁵³ This was not the original concept proposed to the Commission. The present configuration would turn that concept on its head by creating an ever expanding network of terrestrial broadcast stations covering entire urban areas with the satellite signal filling the rural gaps in between.

Section 324 of the Communications Act of 1934 mandates that “all radio stations, including those owned and operated by the United States, shall use the minimum amount of power necessary to carry out the communication desired.”⁵⁴ There is no technical reason why the SDARS licensees have to operate high power repeaters to achieve their signal coverage goals; they have merely chosen to do so because it is cheaper and easier for them to deploy in this way. In the abstract that is fine. However, when that decision imposes significant costs on other spectrum licensees, the principles of sound spectrum management informed by Section 324 must come into play.

⁵² See Sirius Comments at p. 5; XM Comments at p. 9.

⁵³ The single frequency network architecture used by the SDARS licensees was designed for wholly terrestrial broadcast networks, where a primary transmitter covers most of the service area and smaller transmitters fill in any gaps in coverage. Thus, to the extent SDARS terrestrial repeaters are filling in gaps, they are ancillary to the large terrestrial transmitter and not the satellite.

⁵⁴ 47 U.S.C. § 324.

The Commission recently wrestled with a similar spectrum management issue in connection with the re-allocation of television spectrum in the 700 MHz band. Following the trend first set by WCS, the Commission wanted to give licensees in this spectrum block the most flexibility possible. Ultimately, the Commission concluded that it could not adopt rules that would allow both traditional broadcasting and new wireless services. “Establishing regulatory flexibility sufficient to accommodate conventional television broadcasting would impose disproportionate, offsetting burdens on wireless services, constraining their technical effectiveness and, consequently, their economic practicability.”⁵⁵ The Commission explained that where there is a substantial disparity in power levels between services, it is very difficult to craft rules under which they can coexist.

Any substantial disproportion between the power levels of services sharing a spectrum band creates much greater interference difficulties for the lower-power service than when sharing or adjacent-band services operate at comparable power levels. . . . Establishing standards to manage the inherent interference between such dissimilar transmissions as conventional television and wireless services would create substantial spectrum inefficiencies in a band where efficiency is especially important because of the band’s suitability for uses ranging from wideband mobile communications to innovative, fixed wireless Internet access services and new broadcast-type services.⁵⁶

The Commission chose to adopt power limits well below those used for traditional broadcast services. However, it specifically allowed broadcasters who could provide service while operating within that framework to use the spectrum for broadcast services. Similarly here, in the interest of sound spectrum management, the Commission should

⁵⁵ *Service Rules for the 746-764 and 776-794 Bands, and Revisions to Part 27 of the Commission’s Rules*, 15 FCC Rcd. 476, 484 (2000).

⁵⁶ *Id.* at 484-85.

adopt the 2 kW standard throughout the band and allow SDARS licensees to broadcast terrestrially in any way that is consistent with that limitation.⁵⁷

With respect to the Sunset Proposal, Sirius asserts that the WCS Coalition “would have the Commission create a bureaucratic nightmare and a tax on the resources of regulated entities” in order to achieve their goal of “over-regulation of a new mass-market radio service.”⁵⁸ This charge is ludicrous. Because the WCS licensees do not provide SDARS service, they have no anti-competitive reason to impose additional burdens on SDARS licensees. In fact, throughout this proceeding they have consistently stated that they do not object to the use of terrestrial repeaters – only to the use of repeaters that will cause undue interference and prevent WCS licensees from offering a commercially viable service. The SDARS licensees would give WCS a few months in which to seek compensation and thirty-days’ notice in which to relocate base stations and re-point CPE. By contrast, the WCS Coalition would give SDARS licensees over five years (or at least six months in a limited number of markets) to transition from their current high power networks to 2 kW networks, with the option to negotiate agreements for higher power operations with WCS licensees. Objectively speaking, one would have to reach the conclusion that it is the SDARS licensees that are trying to impose a tax on the resources of regulated entities through their blanketing interference and intermodulation distortion.

⁵⁷ Similarly, the Commission imposed a 2 kW EIRP cap on WCS operations to address blanket interference concerns, and there is no basis for departing from that precedent here. *See* WCS Comments at pp. 6-8.

⁵⁸ Sirius Comments at p. 28. Perhaps Sirius has confused the straightforward mechanics of the sunset proposal with the complicated procedures in the PN’s proposal, which Sirius characterizes as “a cross between the tax code and taxicab zone pricing in the District of Columbia.” *Id.* at p. 14.

The Sunset Proposal offers the best resolution of the current interference issues in this docket. It is consistent with the mandate of Section 324 of the Communications Act as well as the original proposal of authorizing terrestrial repeaters as “gap fillers” for satellite signals rather than as a series of stand-alone urban terrestrial broadcast centers. There is no technical reason why the SDARS licensees cannot provide the same level of service with 2 kW networks that they do with high power networks. The Sunset Proposal restores the standard power levels in the band, yet does so over an extended period in order to allow an orderly transition process. It is the best answer to the current problem and should be adopted by the Commission.

CONCLUSION

The Commission should not be lulled by the reassuring words and tempting illusions of the SDARS licensees. Their high power repeater operations will cause real and debilitating interference to WCS operators, but their proposals for addressing that interference are illusory, and even misleading to the extent they purport to be anything like a reasonable accommodation. By contrast, the WCS Coalition has crafted a Sunset Proposal that will once again restore the balance in the band and allow all licensees the opportunity to provide the innovative services for which they acquired their licenses. That should be the goal of this proceeding and the resolution adopted by the Commission to achieve it.

Respectfully submitted,

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